

From waste to biomaterial

Growing new building materials from waste

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Vision

We believe that the future of the built environment is not only circular – it is regenerative. Discussions about circular construction often focus on recycling technical building components and optimisation of production processes. This will enable reuse or recycling of materials. It will however not enable us to provide a built environment to an increasing population. For this purpose we need to develop regenerative buildings and to truly embrace regenerative building design we need to also develop mass produced biomaterials that:

- Are renewable and biodegradable
- Can replace current building materials with high environmental loads
- Can eliminate problematic waste streams

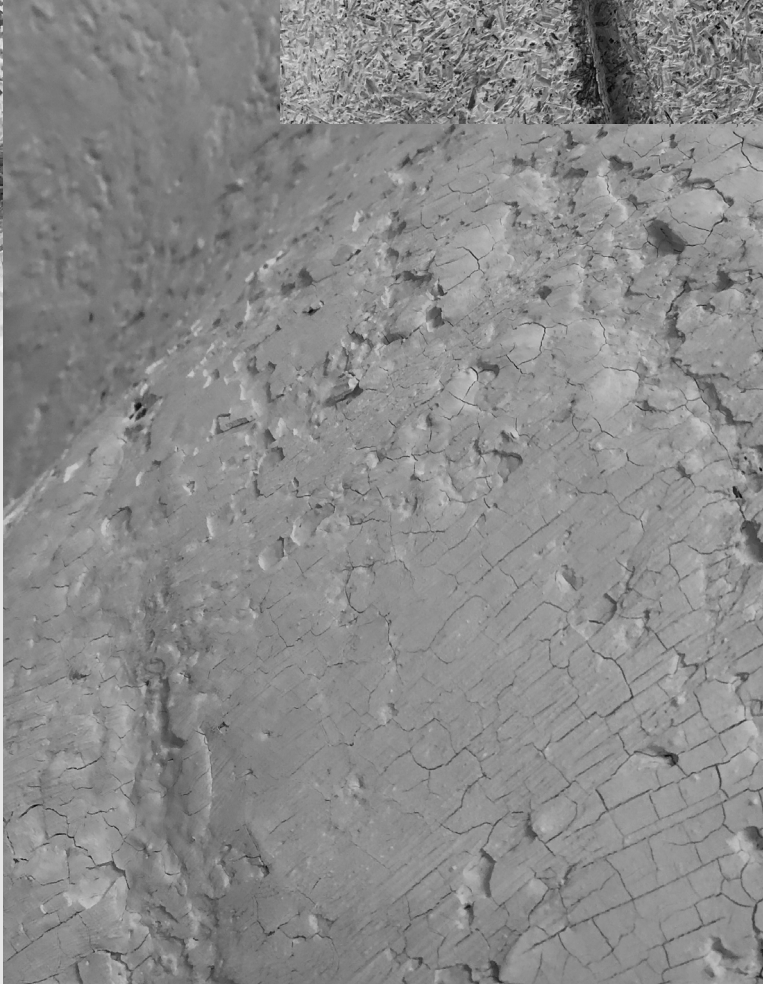
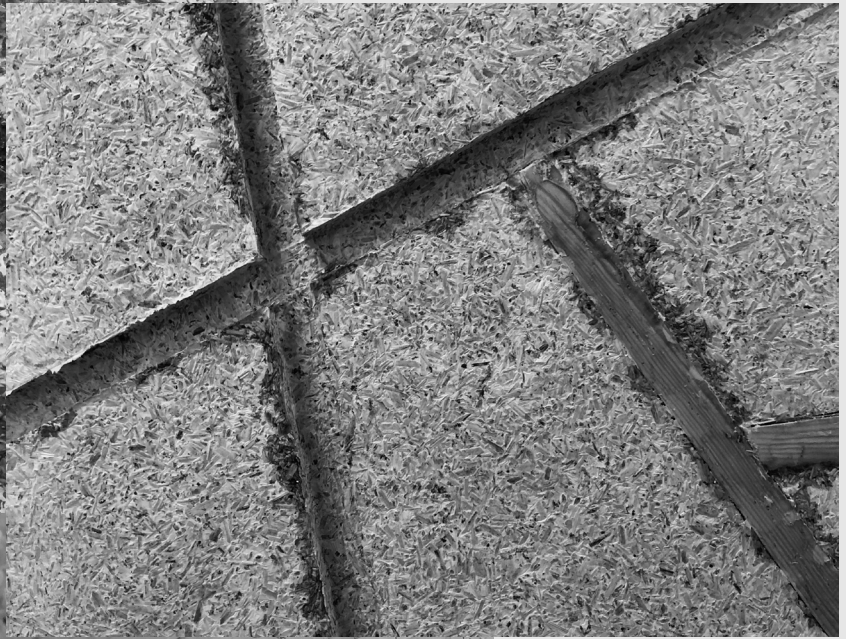
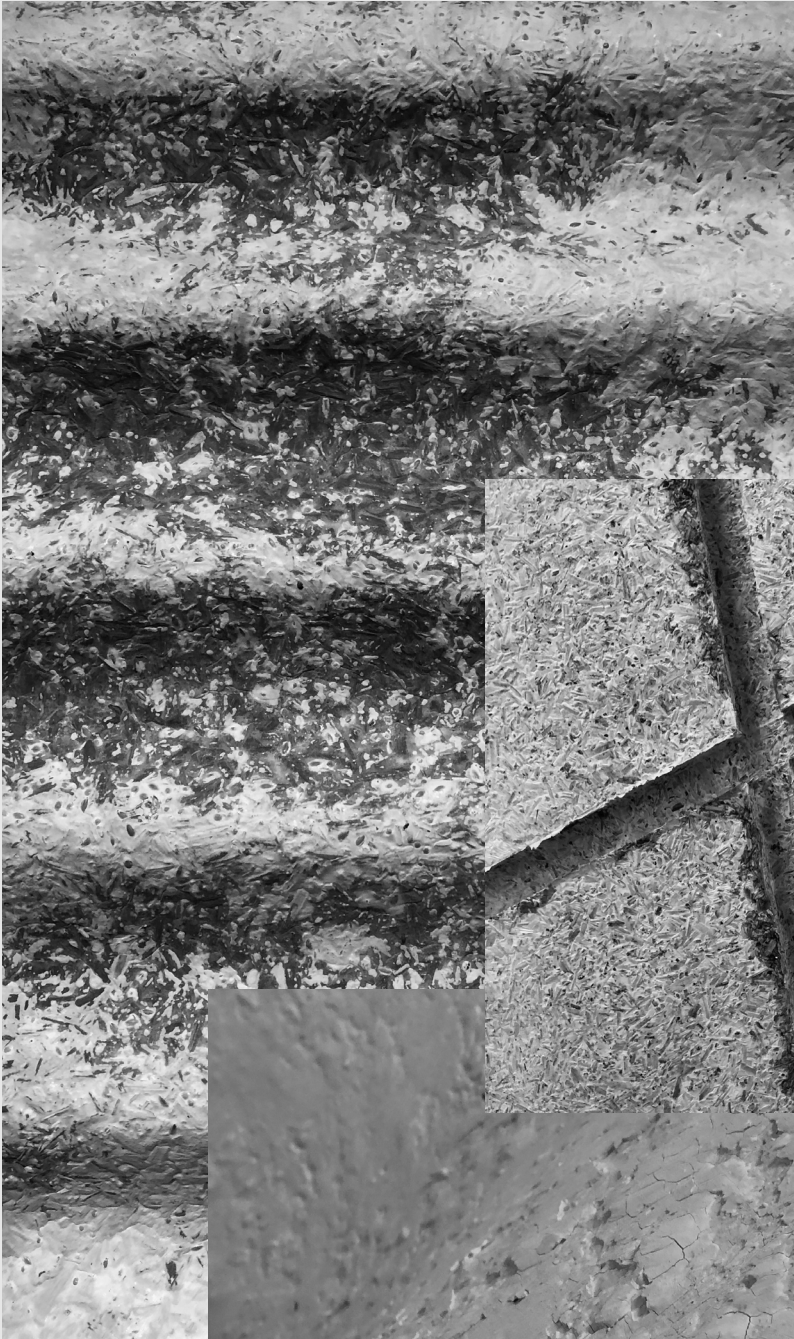
We believe that by transferring the biggest recycling process found in nature to the building industry, we can develop waste and mycelium-based biomaterials.

Short description

Mycelium and waste-based biomaterials have great market potential both nationally and internationally. Through co-creative processes new biomaterials will be developed for the building industry.

Throughout the next six months we will:

- Complete material tests on different combinations of different mycelium species and waste types.
- Develop buildability and fabrication protocols and
- Provide proof-of-concept through design and construction of acoustical panels, interior walls and a spatial structure.
- Document a business case for waste and mycelium-based biomaterials.
- Develop a knowledge-sharing platform.



Circular Construction Challenge

- Rethink Waste

In 2018, the Danish philanthropic association Realdania launched an international, cross-disciplinary challenge to support the circular transformation in construction with innovative solutions, The Circular Construction Challenge – Rethink Waste. The challenge received 39 applications from Danish innovators and afterwards the innovators got 81 applications in total from companies and stakeholders around the world to join the idea in innovation teams structured around the idea. The three winning teams were selected by an international committee of experts in circular economy, design, innovation, and construction.

The three winning teams in the Circular Construction Challenge - Rethink Waste are made up of cross-sector collaboration with more than 42 collaborator across the ecosystem both within and outside the building industry; recycling companies, engineers, architects, non-profits, waste suppliers, farmers, researchers, material suppliers, contractors, demolishers, architects, and designers.

During the one-year challenge program, new circular value is continuously negotiated and new partnership constellations established. The three winning teams have been participating in a six-month innovation phase in February-July 2019, where they have been assisted by expert mentors to develop their prototype. They have also received a cash prize of €130,000 to support the development of the prototype, scale it and bring it to the global market.

